Name: Date:
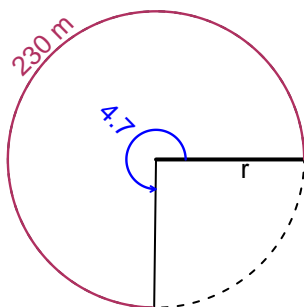
Trig Final (Practice v40)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.7 radians. The arc length is 230 meters. How long is the radius in meters?
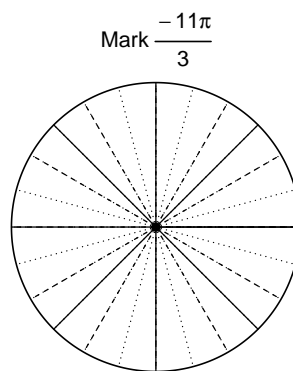

Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-11\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-11\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{13\pi}{4}$

Find cos(13π/4)

Mark $\dfrac{-11\pi}{3}$

Find sin(−11π/3)

Question 3

If $\sin(\theta) = \frac{-56}{65}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 3.07 Hz, an amplitude of 6.77 meters, and a midline at $y = -4.13$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).